



## SEQUENCE LISTING

AS  
SUB  
BL

<110> Naparstek, Yaakov  
Ulmansky, Rina  
Kashi, Yechezkel

<120> NOVEL AMINO ACID SEQUENCES, DNA ENCODING  
THE AMINO ACID SEQUENCES, ANTIBODIES DIRECTED AGAINST SUCH  
SEQUENCES AND THE DIFFERENT USES THEREOF

<130> 13125-002001

<140> 09/847,637

<141> 2001-05-02

<150> PCT/IL99/00595

<151> 1999-11-04

<150> 60/107,213

<151> 1998-11-05

<160> 9

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 22

<212> PRT

<213> Mycobacterium tuberculosis

<400> 1

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1

5

10

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Thr Ile Thr Asn Asp Gly

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<210> 2

<211> 16

<212> PRT

<213> Mycobacterium tuberculosis

<400> 2

Gly Pro Lys Gly Arg Asn Val Val Leu Glu Lys Lys Trp Gly Ala Pro

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<210> 3

<211> 16

<212> PRT

<213> Mycobacterium tuberculosis

<400> 3

Val Val Leu Glu Lys Lys Trp Gly Ala Pro Thr Ile Thr Asn Asp Gly

1

5

10

15

<210> 4

<211> 20  
 <212> PRT  
 <213> Homo sapiens

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 1 5 10 15  
 Gly Val Thr Val  
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 <211> 67  
 <212> DNA  
 <213> Homo sapiens

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 gccgccatgg gaccaaaggg acgcaacgtg gtactagaga agaaatgggg cgcgccgtag  
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 67

<210> 6  
 <211> 540  
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 <213> Mycobacterium tuberculosis

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 20 25 30  
 Lys Gly Arg Asn Val Val Leu Glu Lys Lys Trp Gly Ala Pro Thr Ile  
 35 40 45  
 Thr Asn Asp Gly Val Ser Ile Ala Lys Glu Ile Glu Leu Glu Asp Pro  
 50 55 60  
 Tyr Glu Lys Ile Gly Ala Glu Leu Val Lys Glu Val Ala Lys Lys Thr  
 65 70 75 80  
 Asp Asp Val Ala Gly Asp Gly Thr Thr Thr Ala Thr Val Leu Ala Gln  
 85 90 95  
 Ala Leu Val Arg Glu Gly Leu Arg Asn Val Ala Ala Gly Ala Asn Pro  
 100 105 110  
 Leu Gly Leu Lys Arg Gly Ile Glu Lys Ala Val Glu Lys Val Thr Glu  
 115 120 125  
 Thr Leu Leu Lys Gly Ala Lys Glu Val Glu Thr Lys Glu Gln Ile Ala  
 130 135 140  
 Ala Thr Ala Ala Ile Ser Ala Gly Asp Gln Ser Ile Gly Asp Leu Ile  
 145 150 155 160  
 Ala Glu Ala Met Asp Lys Val Gly Asn Glu Gly Val Ile Thr Val Glu  
 165 170 175  
 Glu Ser Asn Thr Phe Gly Leu Gln Leu Glu Leu Thr Glu Gly Met Arg  
 180 185 190  
 Phe Asp Lys Gly Tyr Ile Ser Gly Tyr Phe Val Thr Asp Pro Glu Arg  
 195 200 205  
 Gln Glu Ala Val Leu Glu Asp Pro Tyr Ile Leu Leu Val Ser Ser Lys  
 210 215 220  
 Val Ser Thr Val Lys Asp Leu Leu Pro Leu Leu Glu Lys Val Ile Gly  
 225 230 235 240  
 Ala Gly Lys Pro Leu Leu Ile Ile Ala Glu Asp Val Glu Gly Glu Ala  
 245 250 255

Leu Ser Thr Leu Val Val Asn Lys Ile Arg Gly Thr Phe Lys Ser Val  
 260 265 270  
 Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg Lys Ala Met Leu Gln  
 275 280 285  
 Asp Met Ala Ile Leu Thr Gly Gly Gln Val Ile Ser Glu Glu Val Gly  
 290 295 300  
 Leu Thr Leu Glu Asn Ala Asp Leu Ser Leu Leu Gly Lys Ala Arg Lys  
 305 310 315 320  
 Val Val Val Thr Lys Asp Glu Thr Thr Ile Val Glu Gly Ala Gly Asp  
 325 330 335  
 Thr Asp Ala Ile Ala Gly Arg Val Ala Gln Ile Arg Gln Glu Ile Glu  
 340 345 350  
 Asn Ser Asp Ser Asp Tyr Asp Arg Glu Lys Leu Gln Glu Arg Leu Ala  
 355 360 365  
 Lys Leu Ala Gly Gly Val Ala Val Ile Lys Ala Gly Ala Ala Thr Glu  
 370 375 380  
 Val Glu Leu Lys Glu Arg Lys His Arg Ile Glu Asp Ala Val Arg Asn  
 385 390 395 400  
 Ala Lys Ala Ala Val Glu Glu Gly Ile Val Ala Gly Gly Gly Val Thr  
 405 410 415  
 Leu Leu Gln Ala Ala Pro Thr Leu Asp Glu Leu Lys Leu Glu Gly Asp  
 420 425 430  
 Glu Ala Thr Gly Ala Asn Ile Val Lys Val Ala Leu Glu Ala Pro Leu  
 435 440 445  
 Lys Gln Ile Ala Phe Asn Ser Gly Leu Glu Pro Gly Val Val Ala Glu  
 450 455 460  
 Lys Val Arg Asn Leu Pro Ala Gly His Gly Leu Asn Ala Gln Thr Gly  
 465 470 475 480  
 Val Tyr Glu Asp Leu Leu Ala Ala Gly Val Ala Asp Pro Val Lys Val  
 485 490 495  
 Thr Arg Ser Ala Leu Gln Asn Ala Ala Ser Ile Ala Gly Leu Phe Leu  
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 Val Pro Gly Gly Gly Asp Met Gly Gly Met Asp Phe  
 530 535 540

<210> 7

<211> 573

<212> PRT

<213> *Rattus norvegicus*

<400> 7

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 Gly Ala Asp Ala Arg Ala Leu Met Leu Gln Gly Val Asp Leu Leu Ala  
 35 40 45  
 Asp Ala Val Ala Val Thr Met Gly Pro Lys Gly Arg Thr Val Ile Ile  
 50 55 60  
 Glu Gln Ser Trp Gly Ser Pro Lys Val Thr Lys Asp Gly Val Thr Val  
 65 70 75 80  
 Ala Lys Ser Ile Asp Leu Lys Asp Lys Tyr Lys Asn Ile Gly Ala Lys  
 85 90 95  
 Leu Val Gln Asp Val Ala Asn Asn Thr Asn Glu Glu Ala Gly Asp Gly  
 100 105 110

Thr Thr Thr Ala Thr Val Leu Ala Arg Ser Ile Ala Lys Glu Gly Phe  
 115 120 125  
 Glu Lys Ile Ser Lys Gly Ala Asn Pro Val Glu Ile Arg Arg Gly Val  
 130 135 140  
 Met Leu Ala Val Asp Ala Val Ile Ala Glu Leu Lys Lys Gln Ser Lys  
 145 150 155 160  
 Pro Val Thr Thr Pro Glu Glu Ile Ala Gln Val Ala Thr Ile Ser Ala  
 165 170 175  
 Asn Gly Asp Lys Asp Ile Gly Asn Ile Ile Ser Asp Ala Met Lys Lys  
 180 185 190  
 Val Gly Arg Lys Gly Val Ile Thr Val Lys Asp Gly Lys Thr Leu Asn  
 195 200 205  
 Asp Glu Leu Glu Ile Ile Glu Gly Met Lys Phe Asp Arg Gly Tyr Ile  
 210 215 220  
 Ser Pro Tyr Phe Ile Asn Thr Ser Lys Gly Gln Lys Cys Glu Phe Gln  
 225 230 235 240  
 Asp Ala Tyr Val Leu Leu Ser Glu Lys Lys Ile Ser Ser Val Gln Ser  
 245 250 255  
 Ile Val Pro Ala Leu Glu Ile Ala Asn Ala His Arg Lys Pro Leu Val  
 260 265 270  
 Ile Ile Ala Glu Asp Val Asp Gly Glu Ala Leu Ser Thr Leu Val Leu  
 275 280 285  
 Asn Arg Leu Lys Val Gly Leu Gln Val Val Ala Val Lys Ala Pro Gly  
 290 295 300  
 Phe Gly Asp Asn Arg Lys Asn Gln Leu Lys Asp Met Ala Ile Ala Thr  
 305 310 315 320  
 Gly Gly Ala Val Phe Gly Glu Glu Gly Leu Asn Leu Asn Leu Glu Asp  
 325 330 335  
 Val Gln Ala His Asp Leu Gly Lys Val Gly Glu Val Ile Val Thr Lys  
 340 345 350  
 Asp Asp Ala Met Leu Leu Lys Gly Lys Gly Asp Lys Ala His Ile Glu  
 355 360 365  
 Lys Arg Ile Gln Glu Ile Thr Glu Gln Leu Asp Ile Thr Thr Ser Glu  
 370 375 380  
 Tyr Glu Lys Glu Lys Leu Asn Glu Arg Leu Ala Lys Leu Ser Asp Gly  
 385 390 395 400  
 Val Ala Val Leu Lys Val Gly Gly Thr Ser Asp Val Glu Val Asn Glu  
 405 410 415  
 Lys Lys Asp Arg Val Thr Asp Ala Leu Asn Ala Thr Arg Ala Ala Val  
 420 425 430  
 Glu Glu Gly Ile Val Leu Gly Gly Cys Ala Leu Leu Arg Cys Ile  
 435 440 445  
 Pro Ala Leu Asp Ser Leu Lys Pro Ala Asn Glu Asp Gln Lys Ile Gly  
 450 455 460  
 Ile Glu Ile Ile Lys Arg Ala Leu Lys Ile Pro Ala Met Thr Ile Ala  
 465 470 475 480  
 Lys Asn Ala Gly Val Glu Gly Ser Leu Ile Val Glu Lys Ile Leu Gln  
 485 490 495  
 Ser Ser Ser Glu Val Gly Tyr Asp Ala Met Leu Gly Asp Phe Val Asn  
 500 505 510  
 Met Val Glu Lys Gly Ile Ile Asp Pro Thr Lys Val Val Arg Thr Ala  
 515 520 525  
 Leu Leu Asp Ala Ala Gly Val Ala Pro Leu Leu Thr Thr Ala Glu Ala  
 530 535 540  
 Val Val Thr Glu Ile Pro Lys Glu Glu Lys Asp Pro Gly Met Gly Ala  
 545 550 555 560  
 Met Gly Gly Met Gly Gly Met Gly Gly Met Phe

565

570

<210> 8  
 <211> 573  
 <212> PRT  
 <213> Homo sapiens

<400> 8

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Arg | Leu | Pro | Thr | Val | Phe | Arg | Gln | Met | Arg | Pro | Val | Ser | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Leu | Ala | Pro | His | Leu | Thr | Arg | Ala | Tyr | Ala | Lys | Asp | Val | Lys | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Ala | Asp | Ala | Arg | Ala | Leu | Met | Leu | Gln | Gly | Val | Asp | Leu | Leu | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Ala | Val | Ala | Val | Thr | Met | Gly | Pro | Lys | Gly | Arg | Thr | Val | Ile | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Gln | Ser | Trp | Gly | Ser | Pro | Lys | Val | Thr | Lys | Asp | Gly | Val | Thr | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Lys | Ser | Ile | Asp | Leu | Lys | Asp | Lys | Tyr | Lys | Asn | Ile | Gly | Ala | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Val | Gln | Asp | Val | Ala | Asn | Asn | Thr | Asn | Glu | Glu | Ala | Gly | Asp | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Thr | Thr | Ala | Thr | Val | Leu | Ala | Arg | Ser | Ile | Ala | Lys | Glu | Gly | Phe |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Lys | Ile | Ser | Lys | Gly | Ala | Asn | Pro | Val | Glu | Ile | Arg | Arg | Gly | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Met | Leu | Ala | Val | Asp | Ala | Val | Ile | Ala | Glu | Leu | Lys | Lys | Gln | Ser | Lys |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Pro | Val | Thr | Thr | Pro | Glu | Glu | Ile | Ala | Gln | Val | Ala | Thr | Ile | Ser | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Gly | Asp | Lys | Glu | Ile | Gly | Asn | Ile | Ile | Ser | Asp | Ala | Met | Lys | Lys |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Val | Gly | Arg | Lys | Gly | Val | Ile | Thr | Val | Lys | Asp | Gly | Lys | Thr | Leu | Asn |
|     | 195 |     |     |     |     |     | 200 |     |     |     | 205 |     |     |     |     |
| Asp | Glu | Leu | Glu | Ile | Ile | Glu | Gly | Met | Lys | Phe | Asp | Arg | Gly | Tyr | Ile |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Pro | Tyr | Phe | Ile | Asn | Thr | Ser | Lys | Gly | Gln | Lys | Cys | Glu | Phe | Gln |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Ala | Tyr | Val | Leu | Leu | Ser | Glu | Lys | Lys | Ile | Ser | Ser | Ile | Gln | Ser |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ile | Val | Pro | Ala | Leu | Glu | Ile | Ala | Asn | Ala | His | Arg | Lys | Pro | Leu | Val |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Ile | Ile | Ala | Glu | Asp | Val | Asp | Gly | Glu | Ala | Leu | Ser | Thr | Leu | Val | Leu |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Arg | Leu | Lys | Val | Gly | Leu | Gln | Val | Val | Ala | Val | Lys | Ala | Pro | Gly |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Phe | Gly | Asp | Asn | Arg | Lys | Asn | Gln | Leu | Lys | Asp | Met | Ala | Ile | Ala | Thr |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Gly | Gly | Ala | Val | Phe | Gly | Glu | Glu | Gly | Leu | Thr | Leu | Asn | Leu | Glu | Asp |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Val | Gln | Pro | His | Asp | Leu | Gly | Lys | Val | Gly | Glu | Val | Ile | Val | Thr | Lys |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Asp | Asp | Ala | Met | Leu | Leu | Lys | Gly | Lys | Gly | Asp | Lys | Ala | Gln | Ile | Glu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Lys | Arg | Ile | Gln | Glu | Ile | Ile | Glu | Gln | Leu | Asp | Val | Thr | Thr | Ser | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Tyr | Glu | Lys | Glu | Lys | Leu | Asn | Glu | Arg | Leu | Ala | Lys | Leu | Ser | Asp | Gly |

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385          390          395          400
Val Ala Val Leu Lys Val Gly Gly Thr Ser Asp Val Glu Val Asn Glu
          405          410          415
Lys Lys Asp Arg Val Thr Asp Ala Leu Asn Ala Thr Arg Ala Ala Val
          420          425          430
Glu Glu Gly Ile Val Leu Gly Gly Gly Cys Ala Leu Leu Arg Cys Ile
          435          440          445
Pro Ala Leu Asp Ser Leu Thr Pro Ala Asn Glu Asp Gln Lys Ile Gly
          450          455          460
Ile Glu Ile Ile Lys Arg Thr Leu Lys Ile Pro Ala Met Thr Ile Ala
465          470          475          480
Lys Asn Ala Gly Val Glu Gly Ser Leu Ile Val Glu Lys Ile Met Gln
          485          490          495
Ser Ser Ser Glu Val Gly Tyr Asp Ala Met Ala Gly Asp Phe Val Asn
          500          505          510
Met Val Glu Lys Gly Ile Ile Asp Pro Thr Lys Val Val Arg Thr Ala
          515          520          525
Leu Leu Asp Ala Ala Gly Val Ala Ser Leu Leu Thr Thr Ala Glu Ala
          530          535          540
Val Val Thr Glu Ile Pro Lys Glu Glu Lys Asp Pro Gly Met Gly Ala
545          550          555          560
Met Gly Gly Met Gly Gly Gly Met Gly Gly Met Phe
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<210> 9  
 <211> 575  
 <212> PRT  
 <213> Artificial Sequence

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Ile Gly Ala Leu Val Val Ala Thr Ala Gly Asp Gly Thr Thr Thr Ala
          35          40          45
Thr Val Leu Ala Glu Gly Gly Ala Asn Pro Arg Gly Ala Val Val Leu
          50          55          60
Lys Lys Val Thr Glu Ile Ala Ala Ile Ser Ala Gly Asp Ile Gly Ile
65          70          75          80
Ala Met Lys Val Gly Gly Val Ile Thr Val Thr Leu Glu Glu Gly Met
          85          90          95
Phe Asp Gly Tyr Ile Ser Tyr Phe Gln Asp Tyr Leu Leu Lys Ser Pro
          100          105          110
Leu Glu Lys Pro Leu Ile Ile Ala Glu Asp Val Gly Glu Ala Leu Ser
          115          120          125
Thr Leu Val Asn Val Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Lys
          130          135          140
Leu Asp Met Ala Ile Thr Gly Gly Val Glu Glu Leu Leu Glu Leu Gly
145          150          155          160
Lys Val Val Thr Lys Asp Gly Gly Asp Ile Arg Ile Ser Tyr Glu Lys
          165          170          175
Leu Glu Arg Leu Ala Lys Leu Gly Val Ala Val Lys Gly Val Glu Glu
          180          185          190

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Arg | Asp | Ala | Ala | Ala | Val | Glu | Glu | Gly | Ile | Val | Gly | Gly | Gly | Leu |
|     |     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |
| Leu | Pro | Leu | Asp | Leu | Asp | Gly | Ile | Lys | Leu | Pro | Leu | Ala | Asn | Gly | Glu |
|     |     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Glu | Lys | Gly | Ala | Gly | Gly | Asp | Pro | Lys | Val | Arg | Ala | Leu | Ala | Ala | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Thr | Glu | Val | Val | Pro | Glu | Lys | Pro | Gly | Gly | Met | Gly | Gly | Met |     |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |

AS  
could

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